

FUSION



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FUSION GREATS



FUSION celebrates its
Top 5 Spectrum games.

SPECTRUM FACES

The ZX Spectrum
had a quite a few
different looks
over the years.
We take a
look from
rubber to Amstrad.



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Editor's Note



The ZX Spectrum was my first love. Back in 1983 I was lucky enough to have a 48K version for Christmas with Manic Miner and Lunar Jetman as part of the present from my Mum and Dad. I can honestly say it was one of the, if not THE, best Christmases I ever had. I vividly remember unwrapping this unassuming present, and feeling the rush of excitement when I realised what it was. Christmas Day would see me fighting to use the family TV in the main living room — trying to persuade my family that playing with Willy was more important than listening to the Queen.

The following Christmas I gave a present to my Spectrum in the form of a ZX Expansion kit — an Interface 1, Microdrive and some Microdrive carts all wrapped up in a presentation box. Life was good.

Through my teenage years I played every game worth playing and collected no end of peripherals for this little machine including a DK'tronics keyboard, Kempston mouse and a Cheetah Spectrums. When it was time to upgrade I chose the Spectrum +2 — the original grey version. The Robocop theme tune by Jonathan Dunn on the +2's AY chip blew me away.

My love of the Spectrum has now spanned decades and it gives me great pleasure in putting this issue of FUSION together fully devoted to my life long friend. I am pretty sure I will have a special place in my heart for this computer for decades to come.

Enjoy this special issue...

Editor

Chris Wilkins

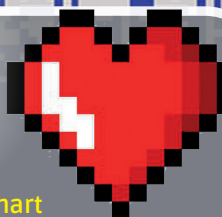
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SCORE 0002860


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FUSION



Game : Daley T Decathlon
Year : 1984
Author : P Owens & C Urquhart

 Daley Thompson was a British national hero back in 1984 and this Ocean game paid tribute to a good number of the events that he competed in at the Los Angeles Olympics. The mechanics and look of the game lent itself to the popular Track & Field game that was riding high in the arcades at the time. Many a Quickshot joystick was broken by the avid bedroom athlete as they 'waggled' their stick left and right whilst willing the 'white' Daley character on the screen to go faster. The 110m Hurdles, Javelin, Pole Vault, Discus, Shot Putt, Long Jump and the High Jump events added a little variety to the running formula where pressing the fire button determined the angle of attack, throw or jump. Daley is given three chances to qualify on each event – qualification sees the crowd roar as the main man takes one step closer to Olympic Gold. Fail, and it's back to the training ground and a hypothetical four-year wait for the next chance.

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QUADRON

Review by Graeme Mason

Robots with a benevolent streak have a rich history on the ZX Spectrum.

From Ultimate's Alien 8, desperately trying to keep the crew and passengers of his spaceship alive, to the charming KLP-2, star of Hewson and Graftgold's Quazatron, taking control of these tin cans full of wires, diodes and blinking lights has been a common facet of some of the finest games to grace the Eighties. And today, thanks to publisher Cronosoft and programmer Andy Beale, this tradition is being kept alive with their latest game.

Quadron is set on the base of the same name, guarded by a team of elite droids. Only there's a big problem: pesky aliens have invaded the base and are determined to pilfer the valuable crystals that the droids are supposed to be protecting. Armed to the teeth and aggressive, the aliens have destroyed most of the team; there now remains just one droid (named Defender Droid, or D-Droid)

Right: Quadron is a very colourful game with a graphical nod to Sabre Wulf.

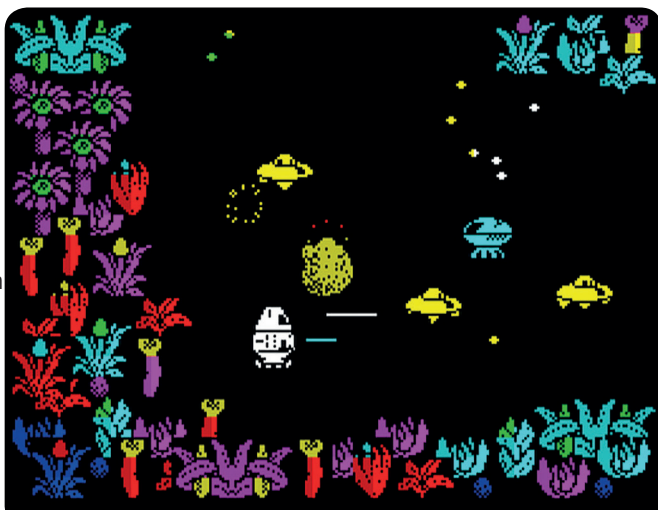
who has fortunately gained an impressive set of skills during the decades spent repelling the thieving trespassers.

Liam Neeson has nothing on this metallic hero.

Coder Andy Beale has form on the Spectrum, having created Psytraxx for publisher The Edge back in 1984, and Quadron employs a similar style of gameplay. Your task is to guide D-droid around the flick screen base, eliminating aliens with your laser while collecting and protecting the crystals that float around. There are numerous pickups to assist in these tasks; while the standard beam laser uses little energy, it has limited



range and can be upgraded to the bolt laser, both of which can only fire horizontally. The



projectile cannon, however, offers vertical fire as well, which comes in useful against the masses of enemies that tend to hover above or below the brave robot. D-Droid can also pick up shields, turbo modules and a nifty device that freezes all the aliens on the screen, enabling him to effortlessly laser them out of existence.

It's easy to like Quadron given the skill and experience that has gone into its design and production. D-Droid moves around the base adeptly, responding well to keyboard and joystick controls, and there are plenty of chirpy sound effects that are reminiscent of Speccy classics such as Starquake and Jet Pac. Zooming from screen to screen and destroying enemies initially appeals, but the depth below this basic shooting soon becomes apparent as the player begins

Below: Your little robot can fire his laser in all directions.



to encounter roaming crystals and the range of power ups. The aliens themselves are full of character, varying from fellow robots to little men in flying saucers, and often gather in difficult clusters, stalking D-Droid throughout the base. With everything from lasers to shields requiring power, balancing the different

elements of Quadron and working out the most effective ratio of attack and defence is a skill in itself, and one that must be deployed while under constant harassment from the game's antagonists. And as you can probably deduce from this, Quadron is no pushover, but it should provide plenty of entertainment and enjoyment in the process.

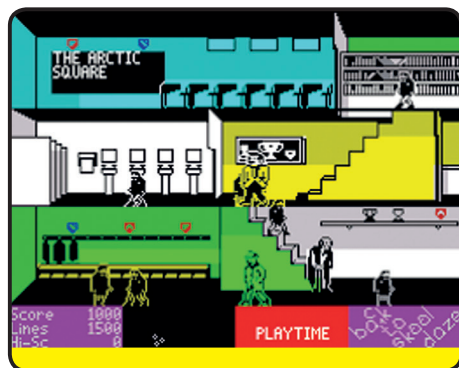
Quadron is available in cassette form direct from Cronosoft for just £6.00, and is compatible with the 48K, 128K, and 128K +2 models but not the +2A, +2B or +3.





TOP FIVE >>

Top 5 classic games to play on your ZX Spectrum



02 // Back to Skool

A quintessentially British game in every respect, Skool Daze beautifully captured the disenchanted childhood of Spectrum gamers born into the crumbling world of Thatcherite dominion. Its sequel, Back to Skool, built on these rock solid foundations while expanding the world of its delinquent main character, Eric. A beautifully constructed farce ensues that takes Eric through every room in the institution — this game makes school look fun!



04 // Manic Miner

6031769 is etched into the brain waves of many a retro gamer. This sequence of numbers activated level select on Bug-Byte's version of Manic Miner giving the player half a chance to see and play the later levels of Matthew Smith's 20-level Miner 2049er inspired game. Miner Willy is the star and sees the player guiding him through each screen collecting keys that open up the door to the next level. Sounds simple — the challenge comes from the myriad of madcap enemies that are intent on taking Willy's life.



01 // Elite

It has to be a sign of Elite's innovation that even today, it beggars belief that a universe of this size was miraculously packed into 48K. It's a feat of engineering that's rarely, if ever, been bested in the gaming world. Setting out into the unreachable blackness of outer space in your trusty Cobra Mk III, with your eyes on the goal of becoming the most feared and respected mercenary in the galaxy. Elite is remembered as the thinking man's game – not just another digital dog fight.

so says Chris Wilkins

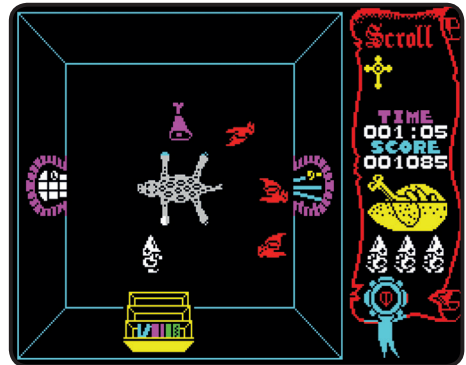
03 // R-Type

If we ever needed proof that the Speccy was the equal of any other games platform (and we don't) you can find it right here in the home conversion of Irem's spectacular scrolling sci-fi shooter, R-Type. You could almost believe that Electric Dreams which handled the conversion found some magical way to break the Spectrum's graphical rules. R-Type was the brightest and most colourful game ever to grace the 8-bit beauty with great gameplay.



05 // Atic Atac

Atic Atac successfully placed gamers within a seemingly-real castle, and embellished on its remarkable realism with a powerful narrative and some revolutionary gameplay mechanics. Most notably you could choose from three different playable characters – a wizard, knight or a serf – and each one came with its own unique journey during the quest to find the mysterious Golden Key of ACG, and thence the castle escape.



MAGNUM

Light Phaser

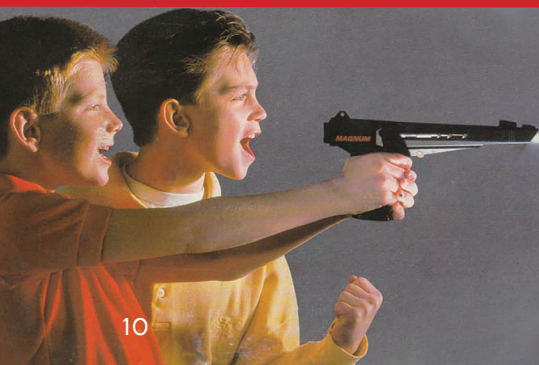
Article by Colin Bell



'THIS IS THE MAGNUM LIGHT PHASER, ONE OF THE MOST POWERFUL LIGHT GUNS OF THE 1980S AND IT COULD BLOW YOUR PIXELATED OPPONENTS HEAD CLEAN OFF... DO YOU FEEL LUCKY?' ASKS COLIN BELL.

■ In 1989 Trojan Products, who were already well known for their CAD light pen peripherals, teamed up with the Virgin Mastertronic group and released upon the 8-bit computing world the Magnum Light Phaser, a new light gun peripheral which promised to bring the experience of the arcade shooting experience into the home!

Trojan, provided the

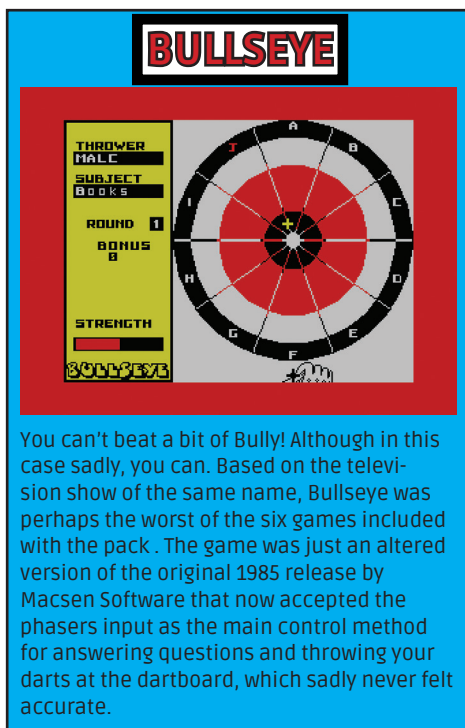




hardware while Virgin Mastertronic provided six games that were to be bundled with the product. Released under the Sinclair banner, now owned by Amstrad, the Magnum Phaser was bundled with new ZX Spectrum +2 & +3 action packs as well as the inspired 007 James Bond Action Pack, which you can read more about in this issue.

The Magnum Phaser was also released as a standalone product, again bundled with the six games either on cassette or on disk. The Phaser itself wasn't the most robust piece of hardware however and felt extremely light and flimsy in the hand. The trigger was also rather weak and left you feeling somewhat unsatisfied. A further issue that the Phaser suffered from was that while playing games each trigger press caused the screen to flash white which became very distracting and made it harder to see what was happening on screen. Some of the games were worse than others for this.

But despite its few niggles, the gun was great fun to play with and made a nice change from waggling your joystick all day. But a peripheral of this nature is only as good as the software created for it, so let's now take a look at the six games that came bundled with the gun.



You can't beat a bit of Bully! Although in this case sadly, you can. Based on the television show of the same name, Bullseye was perhaps the worst of the six games included with the pack. The game was just an altered version of the original 1985 release by Macsen Software that now accepted the phasers input as the main control method for answering questions and throwing your darts at the dartboard, which sadly never felt accurate.

Below: The lightgun was supplied in a very 1980s style box.

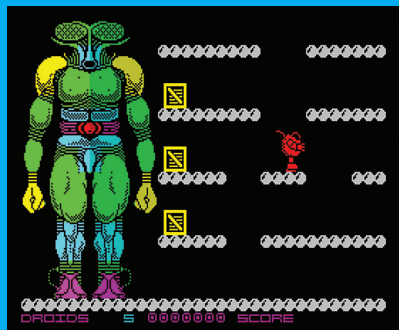


MISSILE GROUND ZERO



A simplified arcade clone of the classic Missile Command by Atari. In this version however missile-like pixelated objects fall from the skies and it's up to you to shoot them before they hit one of your four ground bases. Graphics and animation weren't too shabby and the gameplay at times, albeit a tad difficult was fast and furious. Great for honing your accuracy skills.

ROBOT ATTACK



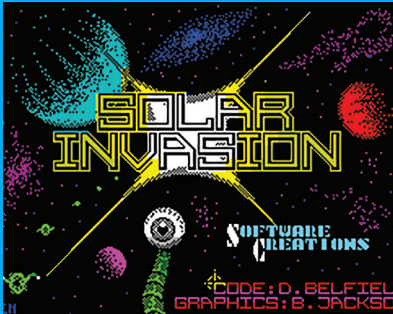
Mini robots fall from the sky and walk down a series of platforms. When they reach the ground level they walk off-screen harmlessly. They may though bump into crates on their way down and if they do, a section is added to a gigantic robot that starts to piece together on the left-hand side of the screen. Once the mini-robots complete the building of their colossal cousin the game is over. The only way to stop all this from happening? You guessed it, shoot the mini-robots as they fall to prevent them from touching the crates. Fun for all of 2 minutes, and quite frankly a top contender for worst game included with the pack.

ROOKIE



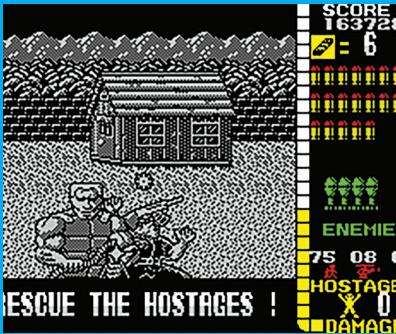
One of the more colourful and graphically pleasing games that came with the pack, Rookie was a rifle range shooter that involved shooting numbered plate-like targets as they appear on screen for points. Don't get too trigger happy though! Ammo is limited but could be replenished by shooting a number '10' target. Levels consisted of a couple of screens that could be navigated by shooting the directional arrow located in the top corners of the screen. The level was complete once you had shot all the required targets. Unfortunately, this was one of the games that suffered badly from the screen flashing white each time the trigger was pressed which ultimately detracted from the gameplay.

SOLAR INVASION



Yet another arcade clone, this time of the iconic Asteroids, but instead of blasting away at chunks of space rock you had to deal with hordes of aliens swarming across your screen. Extra points could be gained by destroying the larger motherships that kept spawning the alien menace. Due to the number of aliens on-screen accuracy played a crucial role and could be difficult at times. The slowdown was an issue also, again due to the number of enemies. Nonetheless, a very fun and enjoyable game.

OPERATION WOLF



This was by far the most notable and stand out game of the pack. By simply altering the aiming cursor that was originally controlled via the joystick to work with the Magnum Phaser, Operation Wolf was one of the most authentic arcade experiences ever to be found on the Speccy. Okay, so the graphics and sound from the arcade original weren't there but the gameplay was and it was quite frankly brilliant! Things weren't completely perfect however as you had to tolerate the ever-present raster bars and screen flashes which appeared every time the trigger was pulled. Undoubtedly the shining star of the game pack that gave us all a taste of just how good a light gun game on an 8-bit machine could be.

As was the case with most peripherals of this type, the lack of support from other software houses meant the lifespan of the Magnum Phaser was all too short-lived. Mastertronic did release several more standalone titles, including Billy the Kid, Bronx Street Cop, F-16 Fighting Falcon, Jungle Warfare and Super Car Trans Am, sadly none of which set pulses racing or offered up anything new.

That all said, I would definitely recommend this to any collector who fancies a new toy to add to their Speccy collection. It was one of the final peripherals ever released for the ZX Spectrum and in my opinion one of the most fun. Go ahead, make your day and get yourself a Magnum Phaser now, Punk!

MAGNUM

sinclair

H A R D W A R E

G U I D E

Article By RYAN COLEMAN

System: ZX Spectrum 16K/48K
Year : 1982

An icon of British technological progress, the ZX Spectrum inspired a generation of youth to learn how to code, and introduced home computing to the masses, much in the way that the Commodore 64 did Stateside. Resembling a rubber



compact black box with membrane keys, the original Spectrum originally retailed at £125 for 16K of RAM or £175 for 48K, which subsequently dropped in price to £99 and £129. Users could also send their 16K Spectrums to be upgraded by Sinclair, or alternatively, they could upgrade it themselves in the form of a kit that needed to be soldered in.

Although this Spectrum had its flaws, it ultimately managed to offer comparable performance to rival home computers at a fairly affordable price.

1982 Sinclair

System: ZX Spectrum+

Year : 1984

Planning on this model began in June 1984, and was released in October the same year. The Spectrum+ introduced a new casing, very similar to the Sinclair QL computer, and featured an injection-moulded keyboard, a vast improvement on the rubber membrane keys of the previous model. Electronically, it was nigh on identical to the previous 48K model, but featured a reset button which the previous model lacked.



System: ZX Spectrum 128

Year : 1985 (Spain), 1986 (UK)

Originally released at the SIMO trade show in Spain 1985, this Spectrum 128K never saw a release in the UK until the following year. The 128K featured an array of significant improvements over the previous models. The internal speaker was abandoned in favour of sound now being played through the television speaker. Also featured was three channel audio via the AY3-8612 chip, as well as RGB output and a MIDI/RS-232 serial port. This Spectrum obviously came with 128K of RAM (hence the name!) but users could also switch to a 48K mode to ensure compatibility with the vast back catalogue of games. There was also a menu to go directly to a calculator, tape tester or tape loader. In spite of being marketed as an 'entertainment machine', this model surprisingly lacked joystick ports. Visually, the design of the ZX Spectrum 128 was similar to the Spectrum+ with the exception of a large external heatsink added to the right hand side of the case. This external heatsink lead to this model gaining the affectionate nickname 'The Toast Rack' or 'Toastie'. This model was the last Spectrum to be released before Amstrad bought out the Sinclair brand and computer range in 1986.



Research Ltd

System: ZX Spectrum +2A
Year : 1987



The first Spectrum to not be manufactured by Sinclair, the ZX Spectrum +2 featured a spring-loaded keyboard, dual joystick ports, and a built-in cassette recorder; which like the Amstrad CPC 464 was dubbed the 'Datacorder'. This model also

looked more like an Amstrad than a Spectrum, what with its grey case, but for the most part, the system was very similar to the ZX Spectrum 128. There were however

a few notable changes. the one-touch-one-word keyboard, meaning that users had to type out words just using letters. There was still an option to 'emulate' a 48K mode and use keywords, but as the new ZX Spectrum+ 2 did not feature these BASIC keywords on the keyboard, users had to just recall from their memory of previous models as to what command each key combination actually produced. The only other notable difference was that the menu lacked an option to perform a tape test, and the copyright message now showed an Amstrad copyright, not a Sinclair one.

System: ZX Spectrum +3
Year : 1987



Released the same year as the ZX Spectrum +2A, the ZX Spectrum +3 was the first Spectrum to feature a floppy disk drive, although not the standard 3.5" size but the 3" size found on the Amstrad CPC. This

model also had issues with sound due to design flaws in its circuitry, resulting in heavily distorted audio.

In spite of the relative speed that games could be loaded from the disk drive, it did nothing to help sales of the +3, partly because most games released on disk were just 48K transfers of existing cassette games. The +3 was also competing with the vastly superior Commodore Amiga and the Atari ST, and subsequently this model ended up being a bit of a flop.

1982 Sinclair

System: ZX Spectrum +2B Year : 1989

Unlike the grey ZX Spectrum +2A, the Spectrum +2B came in a black Spectrum 2+ case. One of the few differences between the +2A and +2B is that the manufacturing location changed from Taiwan to China, as well as the model being fitted with a different motherboard. The +2B would be the final Spectrum released by Amstrad, with production ending in 1992.



System: ZX Spectrum Vega / Vega + Year : 2015 / 2018

Not a home computer but instead a TV plug-and-play game developed by Retro Computers Ltd, the ZX Spectrum Vega was the result of a successful crowdfunding campaign on Indiegogo back in 2014, with Sir Clive Sinclair himself supposedly investing in the project.

The Vega came with 1000 Spectrum games installed, but also featured a micro SD card slot for users to load other games, as well as being able to save their progress each game. The system wasn't apparent that Retro Computers design, which overall felt cheap, stiff buttons. The system also failed something that irritated me when I first purchased one. But in spite of its shortcomings, fun could definitely be had with some of the choice offerings of games featured on the system, and it was the first official product to bear the 'Sinclair ZX Spectrum' name in years, something I personally found exciting in itself! Following the success of the Vega, Retro Computers Ltd decided to follow up with a handheld version — the ZX Spectrum Vega+, again preloaded with 1,000 games but with the benefit of being able to play them on the go — this has yet to appear.

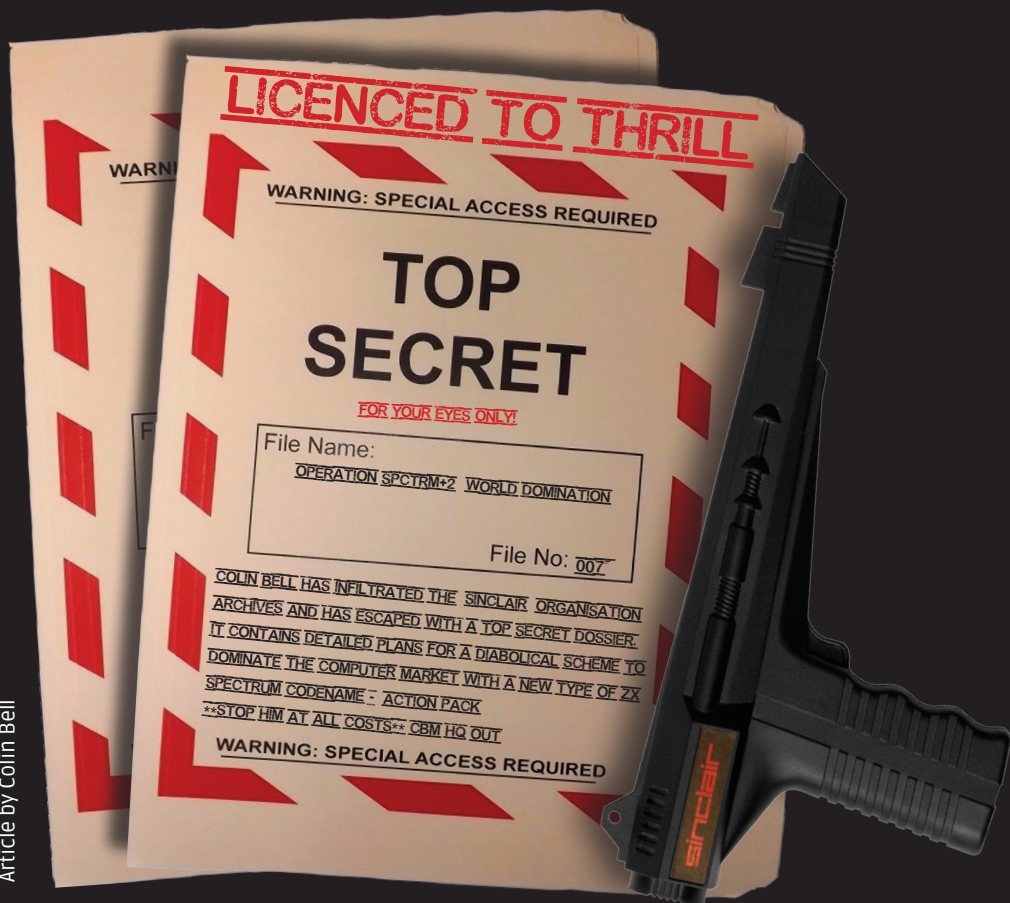


in perfect and it was

had cut corners with the made of flimsy plastic with awkward, to come with a power cable or a scart lead,

first purchased one. But in spite of its shortcomings, fun could definitely be had with some of the choice offerings of games featured on the system, and it was the first official product to bear the 'Sinclair ZX Spectrum' name in years, something I personally found exciting in itself! Following the success of the Vega, Retro Computers Ltd decided to follow up with a handheld version — the ZX Spectrum Vega+, again preloaded with 1,000 games but with the benefit of being able to play them on the go — this has yet to appear.

Research Ltd



■ Action pack, compilation pack, computer bundle — whatever your preferred term was, it is safe to say we've seen some great ones offered up over the decades. Commodore started the trend here in the UK and for a while, in terms of the home computer market, were the only ones. But all that was about to change.

It all began in 1986 when Amstrad purchased the 'Sinclair' brand and decided that the future of the ZX Spectrum lay within the games market, and not in the business market as poor

old Sir Clive Sinclair had originally intended. So, fast forward three years and imagine the sheer joy and excitement of Christmas Day 1989 when many a child unwrapped the ZX Spectrum — James Bond 007 Action Pack!

This was actually Amstrad's third action pack release but the first to feature a movie franchise tie in. The pack retailed at £159 and was a massive sales success. It contained a ZX Spectrum +2 128K, a Sinclair Joystick, Magnum Phaser light gun, and the pièce de résistance, a 'top secret' briefing pack containing a replica of James Bond's passport, which also doubled as the instruction manual, a memo from 'M' with note from Moneypenny



and two special cassettes.

The first cassette featured two new and exclusive light gun missions, on one side, 'Lord Bromley's Estate' and on the other 'Q's Armoury'.

The second cassette featured the main game itself 'Mission Zero' and, in my opinion what truly makes this pack stand out, a special recording by 'Q' himself, Desmond Llewelyn who was hired to voice the audio introductions and briefings for each mission.

The box art was great also, featuring poster artwork from the latest 1987 Bond movie 'The Living Daylights' which featured Timothy Dalton as the new face of 007. In fact, the pack's main game 'Mission Zero' is simply a re-worked release of the original 1987 Living Daylights game from Domark designed to work and be playable with the Magnum Phaser. 'Lord Bromley's Estate' and 'Q's Armoury' however were completely new and exclusive to the pack.

'Now pay attention 007' — it's time for action and time to listen to the first mission briefing from Q who sets the scene for your first assignment, Lord Bromley's Estate which is essentially a clay pigeon shooting simulator. Time to wield the trusty Magnum Phaser! The main aim of this mission is to compete in several rounds of clay pigeon shooting, each one varying slightly in difficulty from the last. Upon completion of the final stage a helicopter approaches full of 'Spider' terrorists who are attempting to assassinate some of Lord Bromley's VIP

guests and it's up to you as Bond to bring them down. Once complete, the mission ends and what's this? a Memo from 'M' telling us that the holiday at Lord Bromley's Estate is over and we are to report to 'Q's Armoury' to undergo a crash course in three new weapons.

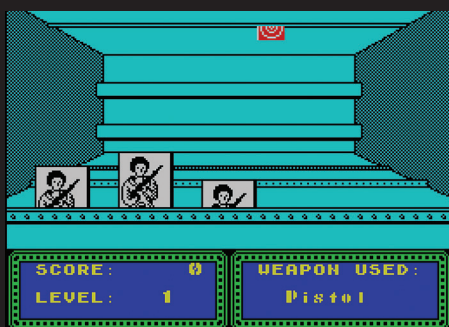
Right, back to business! And time for the second mission briefing from 'Q' who also goes on to lay down the back story of international terror group 'Spider', which is clearly a spin on 'Spectre', and how it's up to you as 007 to bring them down. Apparently this will be your most important and toughest assignment yet so in true James Bond style 'Q' and the boys in the lab have been working on some new gadgetry for you.

Rather cleverly this is where the Magnum Phaser is incorporated into the game as an 'Electro-Genetically Personalised Pistol' which, explains 'Q' can only be used by 007. What follows is a nice short sequence of dialogue and sound fx whereby 'Q' programs and sets up the weapon and we go on to learn that the pistol is in-fact three weapons in one, a pistol, machine gun with continuous fire mode and a bazooka with miniature explosive shells capable of blowing holes in steel armour plating! So, it's off to the shooting range we go to blast all the targets and obtain the required level of competence in each weapon. Only once you achieve this will you be allowed to report to 'M' for instructions on 'Mission Zero'





Above: Lord Bromley's Estate and Below: Qarmoury.

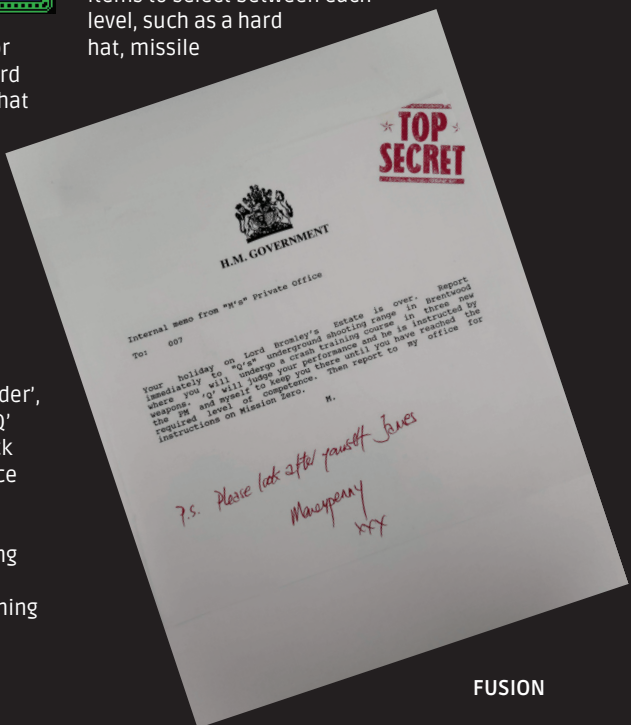


Sadly, we don't actually get to meet or hear from 'M' so it's back to 'Q' for the third and final mission briefing. It transpires that while you have been at the firing range honing your shooting skills, MI6 have uncovered 'Spider's' fiendish plot to mount an all out attack on the world peace talks due to be held next month. This simply cannot happen and it's up to you as 007 to infiltrate their heavily fortified base, shoot your way through eight levels utilising your three different weapons with devastating effect before coming face to face with the head of 'Spider', notorious arms dealer, Brad Whittaker. 'Q' finishes his brief by wishing you good luck and tells you that the future of world piece depends on you! So, no pressure then.

As I mentioned earlier 'Mission Zero' is simply a re-worked version of 'The Living Daylights' game from 1987 by Domark in which you played through each level running

from left to right, shooting the bad guys with a movable target cursor as you went. The re-worked game is exactly the same other than you simply control Bond and make him run by holding down the space bar and instead of a movable target cursor you shoot the bad guys with your phaser. Unfortunately, this is where the pack is let down somewhat as instead of eight levels of 'Spider's' fortified base you play through the eight scenarios from 'The Living Daylights' game that include the Gibraltar countryside, the Russian opera, rooftops in Tangiers and a fairground?

Personally, I find this a real shame as so much work has gone into completely re-writing the back story so as to incorporate the Magnum Phaser missions, I mean would it have killed the developers to provide us with an eight level 'Operation Wolf' style game? Well, probably yes and I guess this all boils down to a simple cost cutting exercise. Still! The action in 'Mission Zero' is fast and furious, if a tad rather difficult at times, with plenty of bad guys to dispatch with whichever weapon you see fit. There are also random items to select between each level, such as a hard hat, missile





firing pen, bombs and even a Ghetto Blaster, all of which if chosen wisely can aid you in some way throughout that current level.

The final stage see's you take on Bond villain, and head of 'Spider' Brad Whittaker in his Mansion. Where is this fortified base? Sadly and to be honest, this is a rather short affair depending on how good your aim is. But should your aim prove true and with world peace threatened no more....well I'll leave that one for you to find out.

If like me, you love the ZX Spectrum, you are into retro gaming and love James Bond, then this is a marriage made in heaven for you and guaranteed to leave you somewhat slightly 'shaken' and a little 'stirred'. The two exclusive light gun missions work really well and while the main mission doesn't quite hit the mark, it's still good fun to play and makes sound, interesting use of the Magnum Phaser.

However, it's the addition of the 'top secret' briefing pack and an all new rich back story narrated by Bond legend Desmond Llewelyn that really elevates this whole gaming experience to a new level and makes you feel like you're playing as the role of 007 in his latest adventure. License to Kill?, more like License to Thrill!!!



'Action Pack' images courtesy of Brian Dickinson.



CAVERN
SCORE:



MONEY:



FUSION

Game : Auf Wiedersehen Monty

Year : 1987

Publisher: Gremlin Graphics

Although it's a long time since he popped his head above ground, Monty was something of an unofficial mascot for the Spectrum. This was his fourth outing, and arguably one of his best. He's out and about looking for somewhere new to live and has opted for the Greek island of Montos. He doesn't just want to live there, of course. Monty's had a busy life in the public eye (of Speccy gamers) and wants to buy the place so he can retire. Collecting the money and goodies required to seal the deal means a platforming adventure across all of Europe and his adventures are rife with the kind of salacious humour and pop culture references Monty was famous for. Indeed, the game's title is just such a reference being named after the excellent British comedy show 'Auf Wiedersehen, Pet' and it pokes fun at the occupants of Europe in just the same way that Oz, Neville, Den, Bomber, Wayne and the gang did on their travels.

ROCKY
HIGH:





Cast your mind back to the early days of the ZX Spectrum, when cassettes were the main way that software was distributed. We are all aware of just how long it took a game or program to load from the cassette as well as the fun (stress) it could provide when it did not work.

Sinclair Research decided enough was enough and looked to design a mass storage system that was cheap and reliable — the ZX Microdrive was introduced in June 1983. For the incredibly low price of £49.95 for the drive or £79.95 for the drive and Interface 1, the user would have access to a fast, cheap and convenient way to store data. So taken was Sinclair with the Microdrive that it was also the primary storage device on their QL computer.

Attaching the Interface 1 to your humble Spectrum allowed up to eight Microdrives to be daisy-chained together to theoretically give over half a megabyte of storage; more than enough for almost everybody. Accessing this massive amount of storage was a breeze thanks to the built-in keywords. Just a few key presses will kick each Microdrive into life, pulling in data at a heady 15KB per second; rather more impressive than a normal cassette.



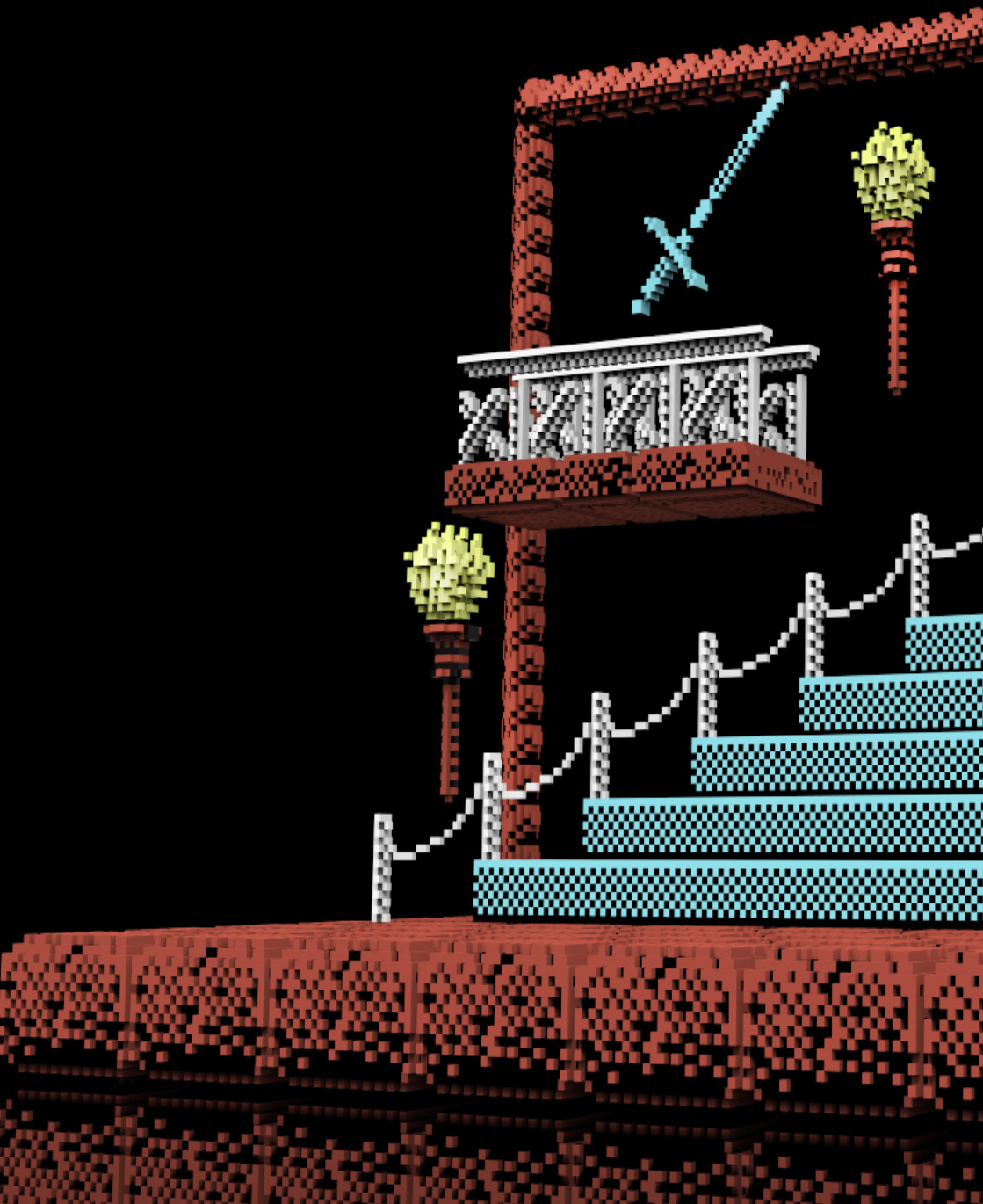
HEAVEN & HELL

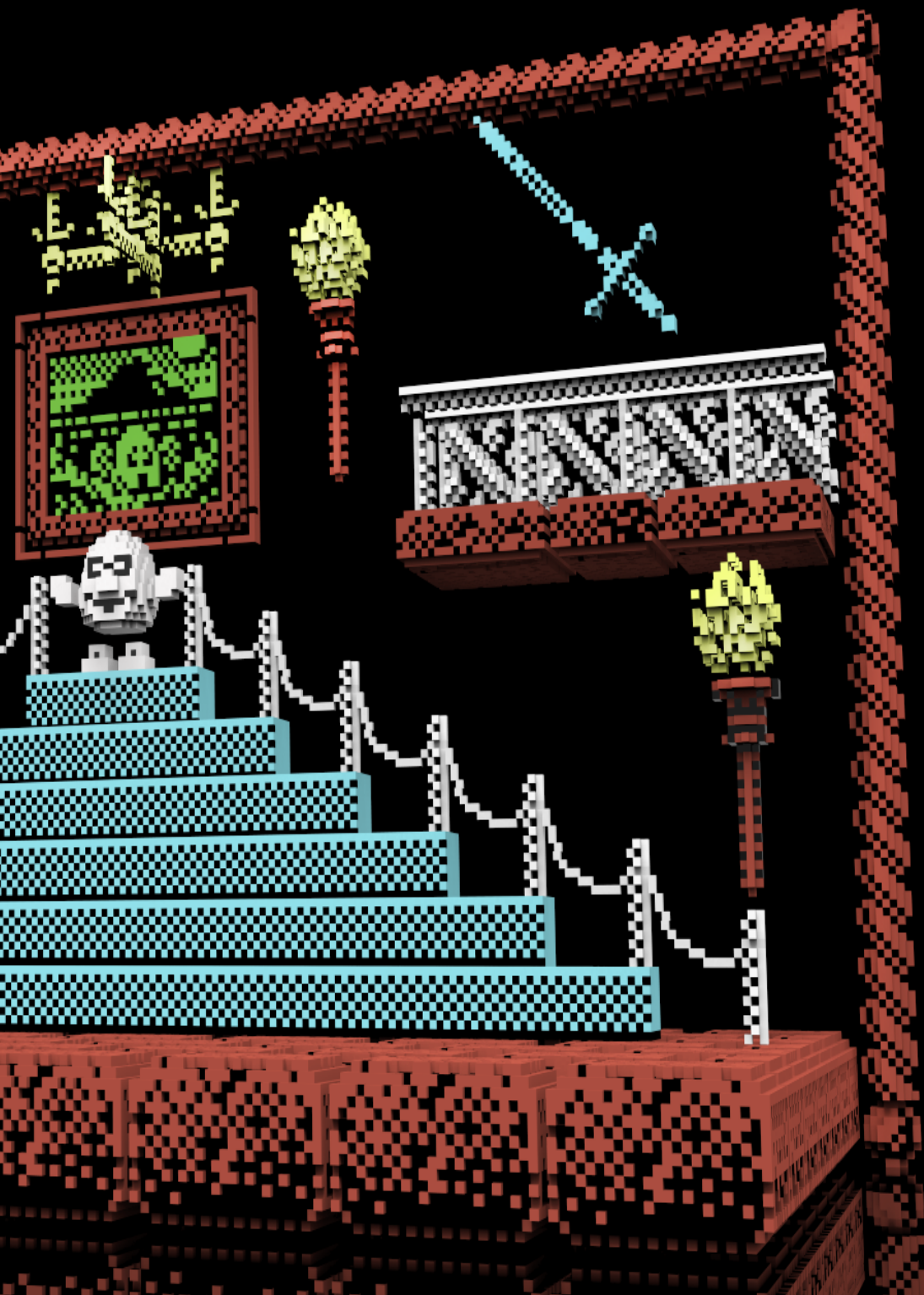
Dear lord, where do I begin? You received your new Microdrive for Christmas in 1983, your first challenge was to find some Microdrive cartridges that you could buy for it — and at £4.95 (£16.50 in today's money) you had to have deep pockets. Even to this very day, finding working cartridges is practically impossible due to the sponge inside deteriorating. Should the sponge get inside the guts of the cartridge, you can say goodbye to the cartridge! That is, of course, assuming the loop of tape inside does not snap due to it stretching when used. The QL Microdrive at least had modifications to put less strain on the tape — don't think you can use a cartridge formatted on a QL Microdrive on the Microdrive attached to your Spectrum; it just won't work. Thankfully help is at hand with guides on the Internet that will show you how to 're-felt' your cartridges which is as tedious and difficult as you might imagine. Let's talk about protection — everyone should practice safe Microdriving, it's the right thing to do! But of course, the write protection on the Microdrive is implemented in software. This means it is extremely risky to have your cartridge inserted in the Microdrive when your Spectrum crashes. It could, and would, wipe the entire tape loop in just eight seconds.

FUSION's recommendation

Buy a Microdrive to display in your collection but use it at your peril.

Dizzy – by Mike Berry





CRASH

ZX SPECTRUM

Oddly, it was not the CRASH Smashed IK+ that got featured on this cover but an 85% Flying Shark. 'I'm not sure whether it was me or editor Barnaby Page who took the 'executive decision' to not have another fight game illustrated on the cover,' says Oli Frey, looking back at one of his favourite pictures.

Whichever, he was only too happy to comply for a number of reasons. 'As a child I enjoyed making Airfix kits of airplanes, though I seem to remember getting more Uhu on the plastic than between the joints. I loved adding the decals and painting the planes as realistically as possible.' In later years while studying at the London Film School,

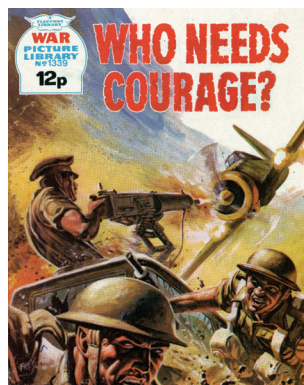
Oliver had cause to start buying and assembling Airfix models again, this time to act as models for action scenes in various Fleetway War Picture Library comic-strip books. He would often be seen holding up airplanes or peering from strange angles at Sherman tanks, pencil poised in hand over



Right: The dramatic Flying Shark with cover straplines.

paper. The income from Fleetway for his efforts paid for a lot of extras as a student... like expensive dinners at the Swiss Centre! 'It must have been my childhood as well as student memories that drew me immediately to this somewhat fabricated

Below: Who needs courage? We ALL need courage!!



story of a World War II biplane and I remember thinking of it more as a Snoopy versus the Red Baron kind of Great War dogfight.' As an image, like so many covers for the magazines, the finished artwork looks a bit empty in those areas where the logo and strap-lines would go. In part, the schedule precluded painting detail which wouldn't be seen,' he admits, 'and in part because it's best to avoid too much visual fuss cluttering up the logo, though I had every intention of adding drama by having the Flying Shark's upper wing cut into it.'



DON'T LOOK BACK IN ANGER!

RENEGADE III

I was grimly clinging on to my Speccy in 1989. Still at school, I had thought about asking Santa for one of those fancy new 16-bit computers, but my extensive library of Spectrum software plus the low cost of new games persuaded me to stick with the old girl. And within that wonderful library sat two of my favourite games, *Renegade*, and its home exclusive sequel, *Target Renegade*. Coded by Mike Lamb along with a selection of talented artists and musicians at Ocean (under its Imagine imprint), both are fantastic brawlers in their own right, the second game even offering that rarity within Spectrum gaming, simultaneous two-player action. Bliss.

We return in time to 30 years ago. The Spectrum is on an inexorable downward channel, and I am beginning to wonder

if I really should have asked Santa for an Atari ST. Then the adverts for a third *Renegade* game appear, complete with a disturbing yet effective subtitle: *THE FINAL CHAPTER*. Little was I to know when shelling out for this game that the words 'thank God' were soon commonly attributed to it by fans of the series.

Renegade III pits the player once more in the eponymous role, only now it's not thugs and gangsters you're duffing up, but medieval knights

and cavemen. Yes, with his girlfriend taken captive by time-travelling villains from the future, the hero must travel back through time, battling each zone's inhabitants in order to rescue her once more. The things we do for love.

It plays as ludicrously as it sounds, yet I, like many, was suckered in by the reviews. By 1989, *Crash Magazine* was a shadow of its former self

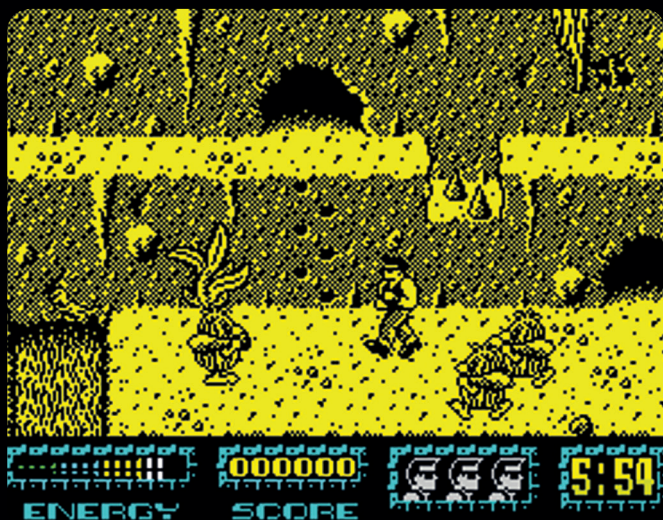
Below: Fighting mummy's and robots and cavemen — different!



(literally, given the greatly-reduced page count), but I still trusted its opinion. 'The latest in the Renegade series is also the best,' declared issue 64 of Crash, 'check it out even if you don't normally like beat-'em-ups.' And from a distance, you can understand why the game's coders decided to shake up the format: another gritty urban fighting game would no doubt have been accused of just being more of the same. But the alternative, a confusing and boring mish-mash of time zones and repetitive gameplay sadly proved even less appealing to Spectrum owners.

In a way, Renegade III reflects the changing software market. Unlike myself, many loyal fans were deserting the Sinclair computer to the 16-bit machines, leaving their sadly-discarded Spectrums in the

Below: The full cassette inlay of Renegade III.

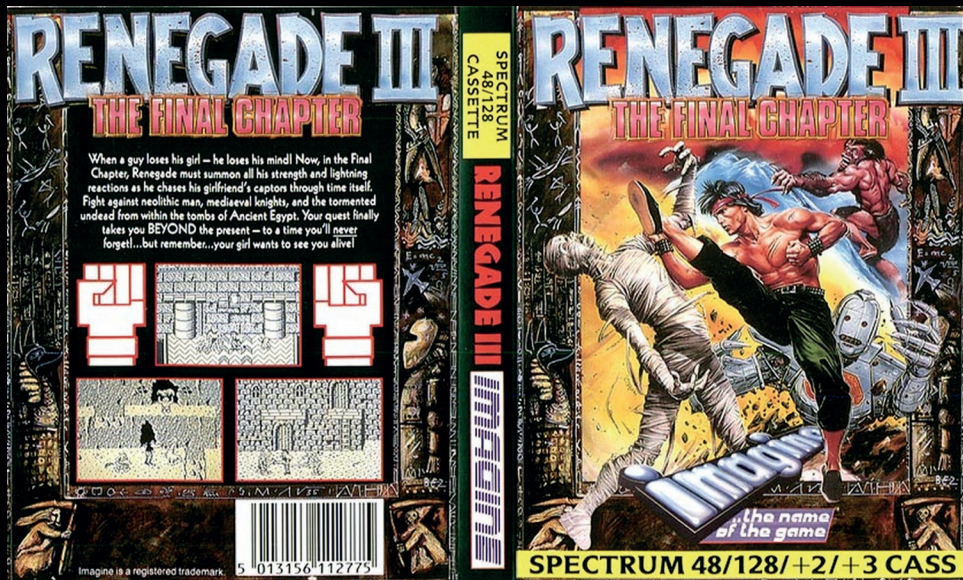


Above: A very detailed urban, I mean cave dwelling environment!

hands of younger siblings or friends. Software houses were undoubtedly taking note of this, and altering their output accordingly. A fantastical third chapter of Renegade, where the player took on comical Flintstones cavemen and dinosaurs instead of

baton-wielding thugs, probably felt like a logical choice at the time.

And ironically, time has been least kindest to Renegade III: The Final Chapter. Thank God.





■ I've always been in awe of majestic game loading screens on the ZX Spectrum, if it had one. That inspired me to have a go and I bought OCP Art Studio (and also The Artist), had a play around with it a fair bit but never came up with anything as striking as loading screens.

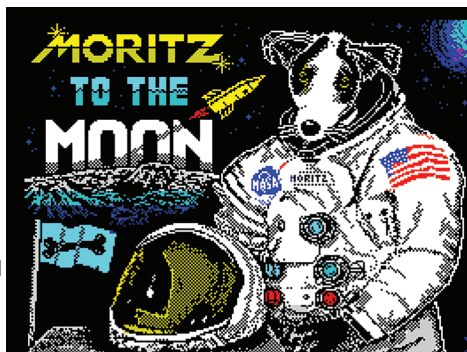
Mine were mainly doodles or crude monochrome attempts at drawing castles, old houses, scenery and such-like. I use to enjoy doing pencil drawings of the aforementioned, so doing pixel versions was difficult at the time. Alas, being young and naive, it never occurred to me to send my work



to software companies. Those I had saved to cassette are sadly long gone. Also at the time, I was more bothered about playing games rather than doing anything constructive, unless you count magazine BASIC type-ins, which was fun.

Once I got the Amiga 500 in 1986, again it was all about the games and it wasn't until the early 90s did I attempt to put pixels to screen using the brilliant DPaint II and come up with half a dozen or so pictures which I'm quite proud of. Fortunately, with a lesson learnt, I had kept my disks and a friend converted them to a PC format so I could view them once more using Amiga emulation. I discovered an unfinished

picture I had started in 1995 and resolved to get it completed. This in turn gave me a buzz seeing the finished work. Time passed, and it wasn't until 2017 that a friend I had helped beta test a game (Project ZX) was impressed with my pixel art and suggested for me to try having a go at Spectrum screens. So, I loaded up The Artist in a Spectrum emulator but found it too slow going. Either that or it was my age! I tried ZX Paintbrush but found the wealth of options too much. I eventually found a marvellous free art program called Multipaint which emulates various 8-bit home computer resolutions and palettes. The program reminded





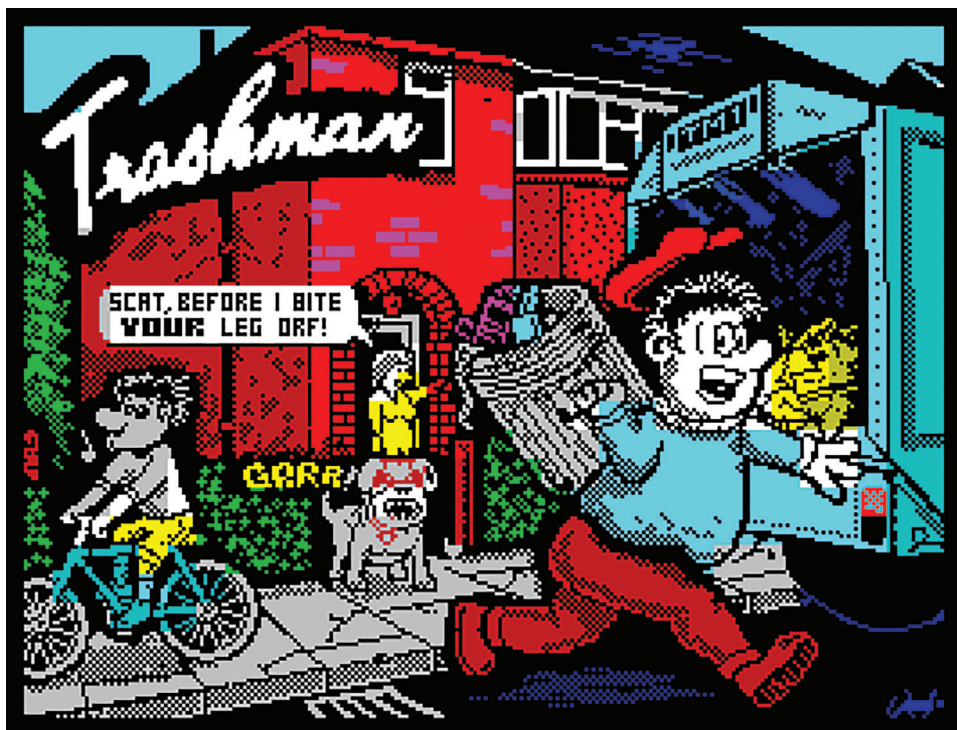
me of a stripped-down version of DPaint which suited me to the ground.

After discovering a classic game I loved back in the day, *Stop the Express*, didn't have a loading screen, I set about creating one for it. Took me a fair amount of time to draw as I got to grips with Multipaint and rectifying many mistakes or not being happy with how it was progressing. When it was finished, it gave me a huge buzz to create more. And more I did, and I have not stopped since!

So why choose the ZX Spectrum to produce pixel art? Well, after the ZX81, the Spectrum played a big part of my life seeing

ground-breaking and original games. Much nostalgia to be had. The biggest challenge of drawing screens on the Spectrum is coping with the infamous attribute (colour) clash which can test one's patience and I eventually learnt to work with it, rather than against. Plus, the 15 colours (well, 8, the other 7 are non-bright) can also prove challenging when copying a games inlay art that could be full of orange or brown, which the Spectrum palette didn't have. You therefore had to adapt and make the best of what is available. On the plus side, Spectrum screens weren't taking me as long to draw as 16-bit images.





Over the past couple of years, you could say I am addicted to pixel art, having got rather carried away producing many screens in my free time. I've broadened my scope since as I don't just do alternative loading screens but also original screens for homebrew games, scenery, fighting fantasy gamebook cover art, movie flyers, or mock-up loading screens for games that were never released on the ZX Spectrum but were on 16-bit home computers. For example, Toki, or The Chaos Engine. One big project I was involved in was to produce 11 screens that introduced each level for a superb game called Project ZX2 – Jetboot Joe. A game full of Spectrum nostalgia.

I was fortunate to be gifted a Next last year (Next board housed in a moulded blue ZX Spectrum rubber-keyed case) and on hearing about the various graphics mode this brilliant computer has, I recently took a couple of the ZX Spectrum loading screens I had done and gave them the Next treatment, utilising the extended palette (256 colours from 512!). Reminiscent of my Amiga DPaint days! I'm also very pleased to say that all my pixel artwork to date are now available in a hardback 140 page book called Better Late Than Never Pixel Art. Myself and Richard Langford wish to make no money and instead, all proceeds are going to the Multiple Sclerosis Society charity – a very worthwhile cause!





THE STORY BEHIND...

■ I'm here with the Oliver Twins, Philip & Andrew, to find out why they surprisingly put Dizzy into an arcade style game? For us Spectrum players it all seemed rather odd.

For some background, the Oliver Twins were very late to the Spectrum. They got their first Spectrum as a gift from David Darling of Codemasters in the Autumn of 1986, and they completed their first game *Ghost Hunters* a few weeks later. Over the next three years they'd pump out

more Spectrum games than anyone — 17 designed and coded by them, with another 10 written by other people using their characters and designs.

Their third game on the Spectrum was *Dizzy*, with the words 'The Ultimate Cartoon Adventure' emblazoned on the front. A little over the top you might say, but it's what Codemasters became famous for, and it worked for them. Codemasters budget games took the Spectrum market by storm, largely because they often were as good as full-priced games, and that's certainly true of the *Dizzy*



adventures, that became classics. But after writing their second *Dizzy* adventure, the hugely successful *Treasure Island Dizzy*, the Oliver Twins did something very unexpected. They put *Dizzy* in a maze game, like *Pac-Man*, what were they thinking?

Chris Wilkins: So since I have you here what were you thinking?

Philip Oliver: It was the first week of November 1988. We were just starting to write *Grand Prix Simulator 2*. The

Left: A colourful *Dizzy* landing screen for *Fast Food*.





Above: Level 1 — time to chase some food!

first Grand Prix Simulator was a huge success 18 months earlier but had a number of issues. So GPS2 was to be a full clean rewrite with massive improvements. As such, we knew it was going to take a month to 6 weeks to produce and therefore would miss Christmas. Christmas was always great for sales, but also a time of transition as people upgraded their computers. This year it would be away from the Spectrum, to the Atari ST, or Amiga 500 meaning anything released after Christmas for the Spectrum would have less sales.

Andrew Oliver: It was a Friday afternoon when we were discussing this. We wondered if we could produce

a game really quickly that could make it out in the first week of December to catch this market? We felt it would have to be some kind of arcade style game, and immediately we realised that one of our all-time favourite games, Pac-Man would be an easy style game to write. We'd previously always wanted to do this style of game, but didn't have the skills or the tools to do it. But now we did!

PO: The more we thought about it, over the next hour or so, the more we realised that it was great for the market too. Game players on 8-bit computers, buying budget games, would love a Pac-Man style game. We needed to come up with our own twist on the maze-game genre. We felt the dots in Pac-Man

were unique to Pac-Man so we shouldn't copy this, or any of their maze designs. Clearly running around a maze required things to chase and catch and enemies to chase and catch the player.

CW: So why food?

AO: Pac-Man had the cherries and various other fruit to eat as special bonuses. We thought kids would rather eat burgers, fries and milkshakes over fruit.

PO: Then we thought it would be fun if the food didn't want to be eaten and would run away — then we suddenly realised it could be 'fast food' and the game could be called Fast Food! The minute we hit on this, we were on a roll and felt we had to make this game.



CW: What about GPS2?

AO: We always had the work ethic that if we started something we were damn well going to finish and ship it! We'd seen too many great coders with half written games and in the low drudgery part of the project (about halfway through), they'd become disillusioned, tired and bored of it and start something new. We didn't want to do this with GPS2.

PO: The way we resolved this was to say, look, it's Friday afternoon, as long as we are back on GPS2 by Monday morning, we've not broken our own self-imposed code of practice. We've simply taken the weekend off.

AO: Rightly or wrongly that's how we sold it to ourselves. That meant we had to start immediately and attempt to finish it by Monday morning.

CW: Wow — quite a challenge, did you achieve it?

PO: Pretty much, we didn't sleep much that weekend. But

in the early hours of Monday morning, we had to stop and have a few hours to sleep.

AO: Monday was spent playing the game, tweaking all 30 maps and sorting them into a good level of difficulty order.

CW: Where does Dizzy come in?

AO: In our haste — we'd actually just drawn a yellow Pac-Man as the main character, with the idea we'd change this later. Although we'd not really decided on what character. Certainly we'd not considered Dizzy.

PO: Wanting it in the shops as soon as possible, we immediately sent playable code to Codemasters saying we would finish this in the next few days, getting Neil Adamson to tidy up some of the graphics, do a title screen and we'd like them to arrange some

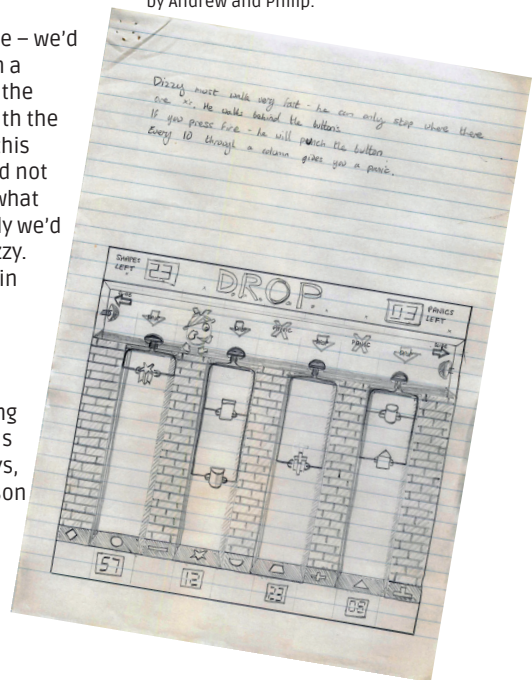
Left: Level 2 — time for some fizzy drink!

music tracks for us. Something Codemasters had done for some of our previous games. As usual David Whittaker provided music.

CW: So it was Codemasters who thought about putting Dizzy in?

PO: Well if they did, they didn't tell us. What actually happened was the Head of PR & Marketing, Bruce Everiss, saw Fast Food with a Pac-Man character and immediately thought of the idea of working with Happy Eater, a fast-food restaurant chain at the time, whose logo was pretty much a Pac-Man character. His plan was to call it Happy Eater and as well as selling

Below: Some design notes for the game — sketched by Andrew and Philip.



through the regular shops, that each restaurant could have the games available to purchase next to the till. It did seem like a great idea. I'm sure Codemasters saw that if this was a success they could probably follow up with more Codemasters games being sold through this large chain of restaurants — great impulse purchase material.

Bruce set off to make this happen and we heard the first meeting went well sadly these things take time. Meanwhile, we updated the graphics and put the music in and told Neil not to do anything with the main character. And of course, we got back to writing GPS2.

About a week later Bruce was given a new master to show to Happy Eater, which

he did. Happy Eater, in their wisdom, took a few weeks to review and then a few more meetings were had.

We don't know what happened, but sadly a deal could not be agreed, and sometime in late January, or early February we were told the deal wouldn't be happening.

Never wanting a good game go unreleased, we felt all we needed to do was swap the character to something else and we could ship it. By then it had dawned on us that this was a great game and why not have Dizzy as the main character?

CW: I'm guessing Neil Adamson did those graphics for you?

PO: Yes, It was a simple call

to him to say 'Can you please now do the main character as Dizzy' and a few days later all the necessary sprites turned up and we were able to drop them in and remaster the game.

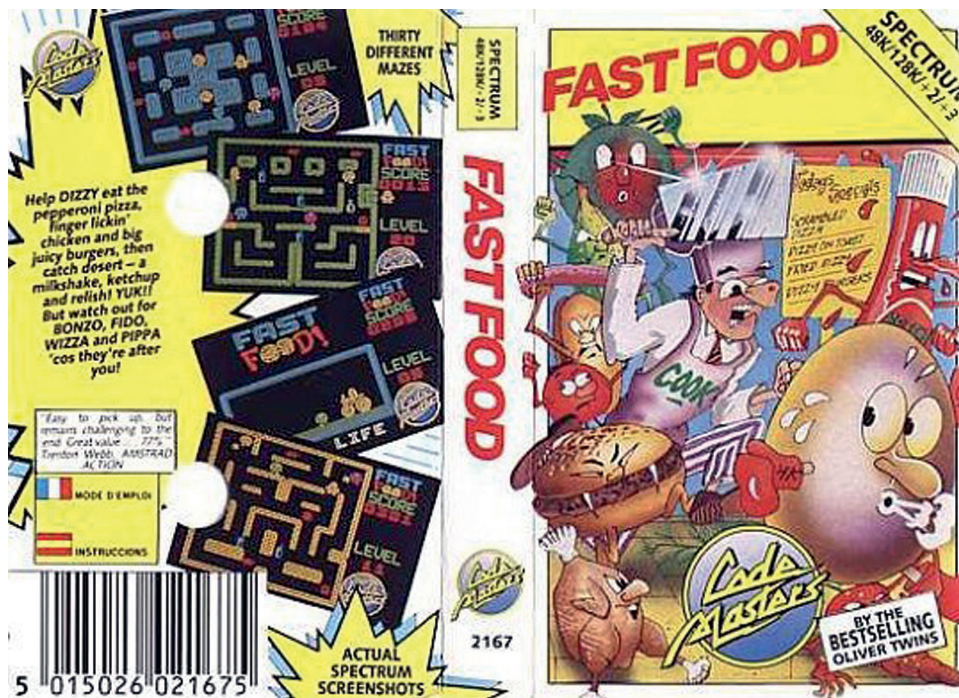
CW: So how did the game do?

PO: Really well for a game that took so little time to write. It was a UK #1 bestseller and probably sold around 100,000 copies on the Spectrum although we don't have the sales numbers anymore.

AO: We obviously wrote the Amstrad version at the same time, and it was converted by others to C64, Atari ST, Amiga & PC. Across all formats, it

Below: Moving onto Level 3 — I fancy a chicken leg!





Above: The ZX Spectrum full cassette inlay for Fast Food.

probably sold around 300,000 copies!

CW: Were there any Easter Eggs in the game?

AO: If you beat all levels — you then had to try and play the levels upside down! That was fun!

PO: Well talking of Easter Eggs, both ST Action and Amiga Action magazines released an Easter version of Fast Food for Easter '93. It had fewer levels and replaced the food with easter eggs.

CW: Would you have done anything differently looking back on it?

AO: No, we were very pleased with it. I think we

should have made a decision on that first day to put Dizzy in as the main character — that would have saved some time and it would have been released in time for the Christmas market.

CW: So is that the last we'll see of Fast Food Dizzy?

PO: Ah yes, well as you know we've been helping to support Fuze4 on Switch. A fantastic 'game' that allows players to write their own Switch games and share them with friends. It's very powerful. We've already given over most of the original Dizzy graphics for them to be included in their

extensive library of assets, but we're now going one step further. The team at Fuze are producing, as an example game, an all-new version of Fast Food and we're really looking forward to it.

CW: Sounds interesting. I look forward to seeing that too. Well thanks again guys for talking to me.

Below: Scoffing a couple of burgers — talk about fast food!



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ALIENS

NEOPLASMA

■ The popularity of the ZX Spectrum in Russia has always been one of the oddities of the Sinclair phenomenon, although of course this manifested itself in a series of clones, rather than the official devices, created under the nose of the country's communist regime. *Aliens Neoplasma*, from the Sanchez team, is the latest example of the coding skills redolent in Russia, and it's an impressively atmospheric ZX take on the *Aliens* franchise.

Via the mother-esque green digital display of the Achilles Navigation System, the player is thrust almost immediately into the nightmare of an alien-infested space craft. Carrying 15 crew and 45 colonist passengers, all in hyper sleep, the craft is bound for Earth along with its cargo of ore samples when medical lieutenant Ashley Smith (resembling the tall, long-haired heroine of the movies) is abruptly awoken from her slumber.

It's quickly apparent to Ashley that all is not well, despite the exhortations of normality from the unhelpful computer.

Aliens Neoplasma is a flick screen platform adventure, set over the many decks and rooms of the spaceship *Achilles*. Ashley can converse with the ship's AI, often an obtuse interaction, albeit one that can result in unlocked doors and access to new areas. The *Achilles* itself forms a striking backdrop to the exploration, with frequent splatters of blood warning of a menace aboard the ship. Ducts, sliding doors and the eerily smiling computer terminals add a veneer of

unease to Ashley's journey, investigating the corridors and rooms for clues as to what has transpired.

It's not long before slithering face huggers are chasing the protagonist down, and should they get too close, embracing Ashley's head within their vice-like grip. Then, the xenomorphs themselves appear, strutting around as if they own the place, which in a sense, they now do. Beautifully animated and quickly onto Ashley, instantly killing her, these are the ultimate hunters and to be approached with extreme care. Fortunately, there are pulse rifles and grenades in plentiful supply,



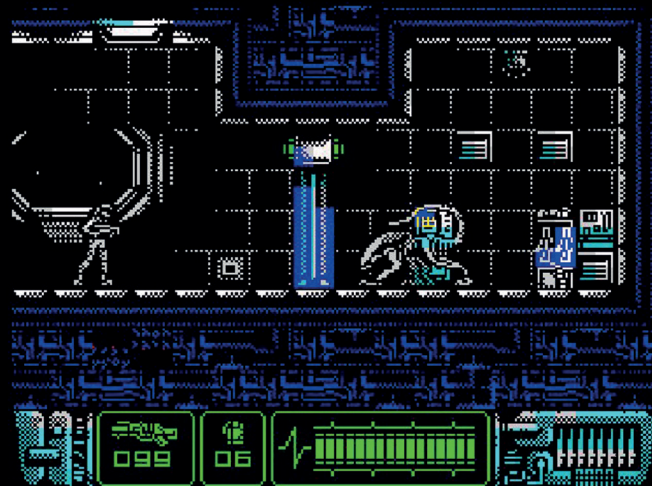
Right: A very colourful depiction of this dark game.

although even these need to be deployed swiftly, such is the speedy ferocity of the aliens.

Given the nefarious reputation of the company Weyland-Yutani, owners of the *Achilles* spaceship, there's a nasty underhand operation going on here, as the computer freely admits. 'The company's already tried to get these samples before,' the scheming mainframe reveals, before echoing the glowing sentiments of Ash the android from *Alien*. 'The creatures are beautiful and flawless, they can't be given away.' Ashley and her crew, as is customary, are the expendables at the heart of a company plan to use the aliens as bioweapons. It's a familiar, yet still evocative tale.

It's clear from this plot, and the stylish representation of the *Aliens* universe that *Aliens Neoplasma* has been constructed with a great deal of care and admiration for the

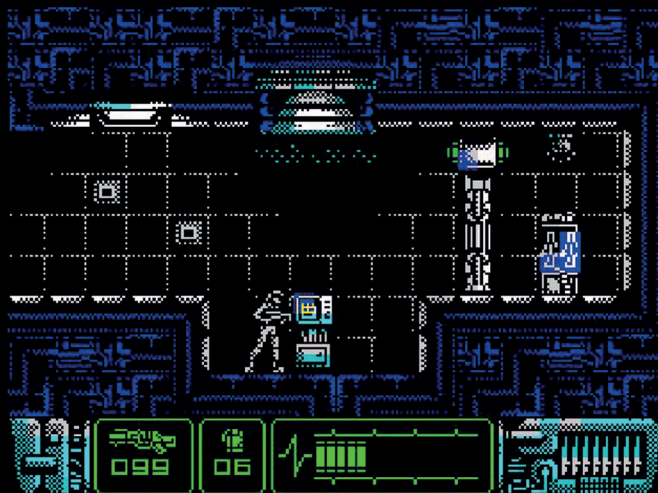
Below: Gorgeous settings that even Mr Giger would love!



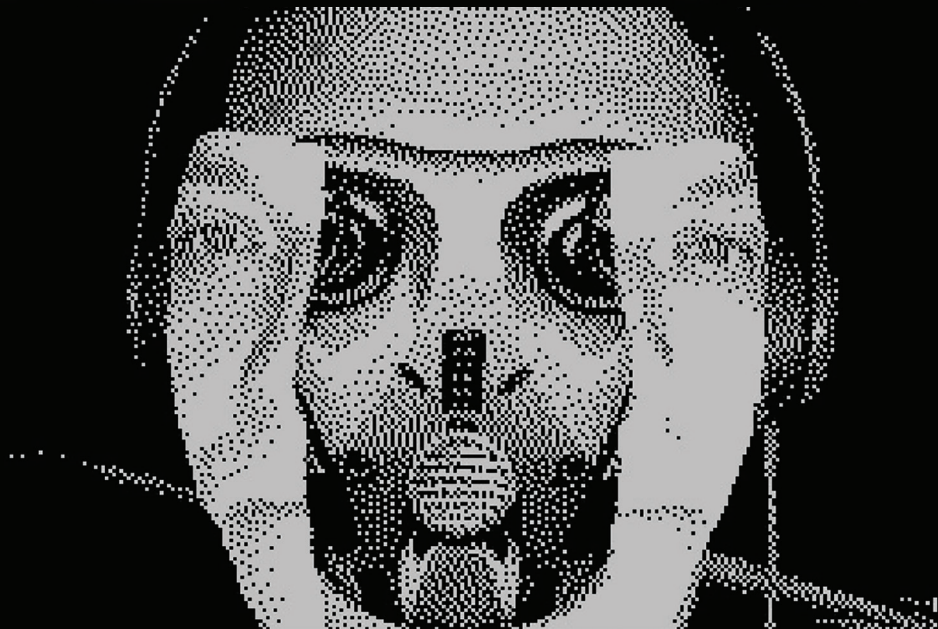
source material. Its creators are ardent fans of all the films, and as you might expect, the game is exceptionally tough, with the aliens providing a stiff challenge, even for the well-armed lead character, given that one slip or pause can result in death for our lone medical technician. A fair amount of traipsing around the

labyrinthine ship is required, but with Ashley elegantly animated and a joy to control, this seldom becomes a chore, except perhaps during sequences where she must crawl through narrow tunnels to reach the next room. As with the first film, Ashley's objective is merely to escape, although destroying the alien menace in the process might be a good idea.

Aliens Neoplasma can be bought directly from its publisher at www.zxonline.net/game/alien-game/.



SPECTRONICA



■ **Spectronica is an album of lo-fi Beeper music recorded from ZX Spectrum hardware by Richard 'Tufty' Hollins.**

People always ask me the same two questions, 'why do you make music for such limited hardware instead of proper synths and how do you actually record it from the Spectrum?'

I enjoy writing the music on the Spectrum as it's such a challenge to try and create something on a machine only designed to produce a single channel square wave beep. I also just love the unique nostalgic sound, instantly recognisable to the Spectrum. This is only possible due to the many modern sound engines now being produced for the machine, which are pushing the sound capabilities way further than ever before. Much in the same way as the Commodore 64 sound capabilities are continuing to be pushed. It's very refreshing that coders and musicians have

given both of these machines a new lease of life with new software produced regularly, pushing their boundaries.

The fact that there are only a very small amount of people actually producing Beeper music also appeals to me as the output is different and stands out from the norm. Ultimately though, the challenge is to try and see how far the ZX Spectrum Beeper can be pushed to produce listenable, interesting and surprising music.

The tunes in Spectronica were written on a PC using music software Beepola, Bintracker and 1tracker. These music utilities use emulated Spectrum sound engines and compile the finished tunes into files that can be loaded into a real Spectrum in the same way as a game file.

I usually use a phone app called Speccytape to load the tune files into my trusty 1983 48K ZX Spectrum. I then simply plug an audio cable into the mic socket on the Spectrum and the mic line-in port on my laptop. Once the music is playing on the Spectrum I record the output

on the laptop using the Audacity application.

An interesting fact (for Spectrum enthusiasts anyway) is the sound quality from the ear and mic ports of the Spectrum is very different. There is a much nicer, more bassy, rounded sound from the mic port, which is preferable for recording the best possible output.

Once the raw recordings have been made in Audacity, the sound is EQ'd to remove some high frequency hiss and increase the bass on tunes which use certain beeper engines such as Qchan (used in the recent homebrew games Explorer 2 and Mike the Guitar, the shooter).

Dependant upon the sound engine used, the tunes are all EQ'd differently purely to taste. I'm always conscious not to apply filters as this destroys the authenticity of the Beeper music and starts to venture into the realm of fakebit, although on one of the tracks in Spectronica I did apply a small amount of post processing



effects to spruce it up a little.

On this album I also recorded one tune from a ZX Omni laptop and one from a ZX Vega+ to test their beeper sound and maybe add interest to the album. The Omni was excellent with output much like a Sinclair Spectrum. The Vega+ was not bad although maybe lacking some top end frequencies as was to be expected.

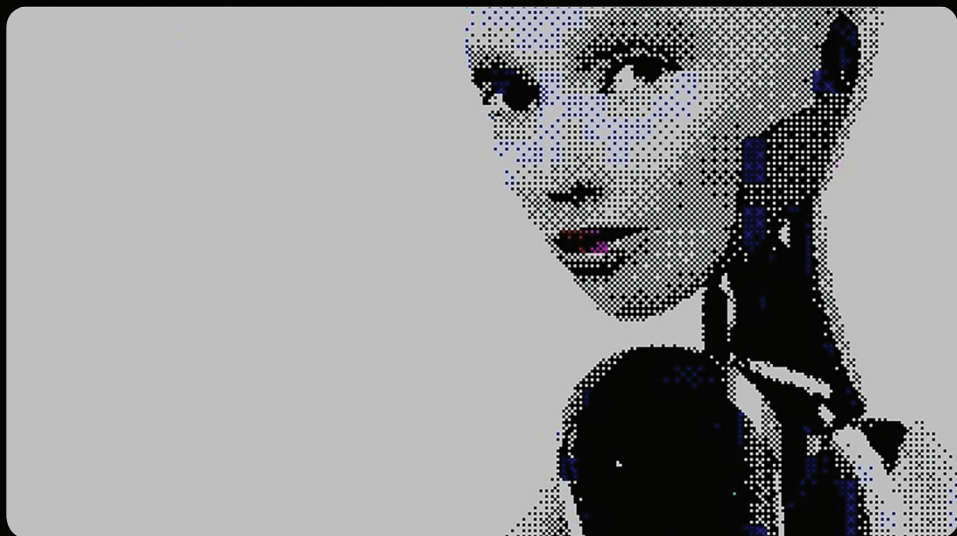
A limited edition cassette tape of the album was produced by Glasgow based record label Cow Tongue Taco Records which is proving pleasingly very

popular with Spectrum and chiptune fans.

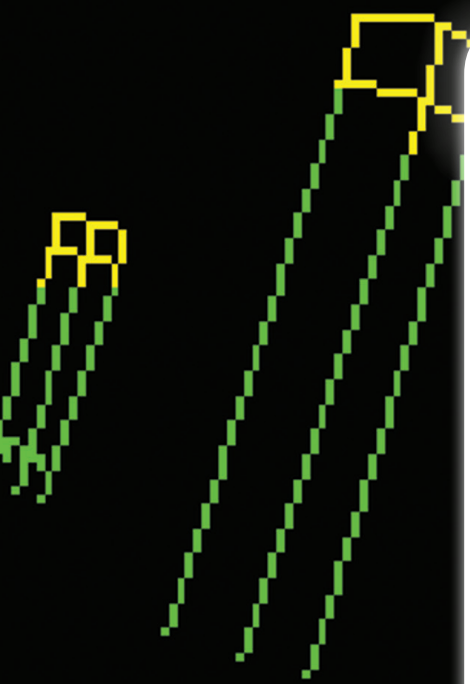
If you'd like to take a listen, Spectronica can be found here at Cow Tongue Taco's site or streamed on Spotify and Amazon.

<https://tufty1.bandcamp.com/>

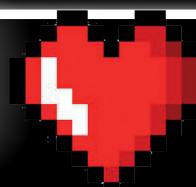
<https://cowtonguetacorecords.bandcamp.com/>







FUSION



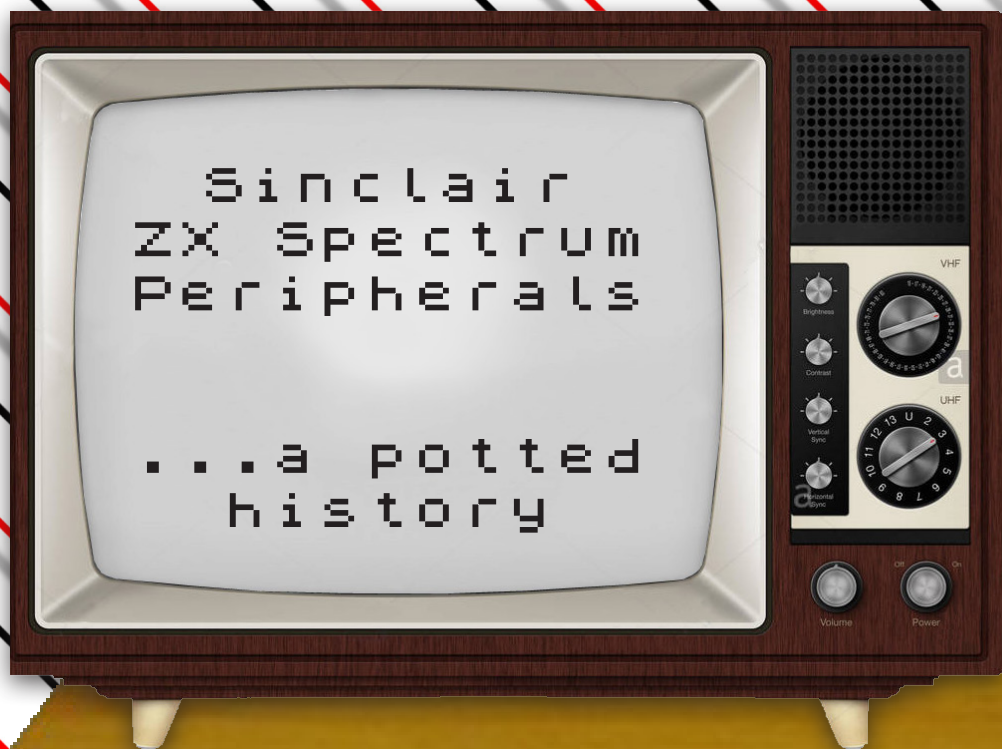
Game : 3D Starstrike

Year : 1984

Publisher: Realtime Games Software

■ Star Wars euphoria spilled over into the arcades of the '80s with Atari launching their iconic Star Wars cockpit cabinet into the bustling seaside arcades and pleasing so many wannabe Jedi Knights eager to take on the dark side of the force and ultimately blow the hell out of the Deathstar. 3D Starstrike brought that experience into the bedroom where the Kempston joystick became the yoke of the iconic X-Wing fighter and the screen of your trusted Ferguson Colour TV became the outer regions of space filled with the Tie Fighter scum of the dark side. With Obi-Wan urging you to 'use the force', wave after wave of vector ships are shot down, laser turrets on sprawling landscapes obliterated and fortified trenches traversed leading you up nicely to the showdown with the Deathstar equivalent. As you shout 'Let's blow this thing and go home', you shoot at two vector boxes that release a force field allowing you through, a somewhat anti-climatic galactic experience to an otherwise flawless tribute to its arcade brethren.





■ Codenamed the 'ZX82', the ZX Spectrum 16K/48K was officially launched in 1982 and marked the next step in the evolution of the Sinclair home micro range. Considerably more advanced than its predecessor the ZX81, the new ZX machine featured more memory, colour, sound and the now iconic rubber keyboard, which you either love, or hate (just for the record, I love it) along with the many official and third party peripheral devices that were released for this glorious system.

Come join me, Colin Bell, as we take a look back at some of the peripheral devices on offer for our beloved Speccy.

Tape Recorder — Year of Release: 1960s

Tape Recorder, Cassette Deck, Data Recorder, whatever you call it, you weren't going to get very far without one of these, unless you were really big into typing in line after line of code listings.

Now most readers here don't require an explanation as to what a tape recorder is and what it does, but with the younger reader in mind here is a very brief and quick description. A tape recorder is a portable music device with its own loudspeaker output and microphone input that allows the user to play and record sound onto magnetic tape audio cassettes. Connecting one to your ZX Spectrum meant you could save and load data onto the cassette. All software houses of the time used cassettes as a cheap means of distributing their latest software releases.

Eventually the ZX Spectrum would come with an in-built tape recorder, but this wouldn't happen until 1986 when Amstrad would go on to acquire the rights to the Sinclair brand and release the ZX+2A & 2B range.

I know its technically not an official peripheral release for the Spectrum but arguably it is one of the most important.



ZX Printer — Year of Release: 1981

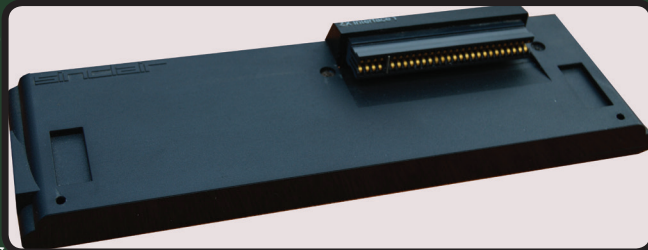
Originally launched in 1981 this rather cute and compact little peripheral had already been doing the rounds on the ZX80 & ZX81 circuit before it found its way onto the new ZX Spectrum 16K/48K scene.

The ZX Printer provided a low cost budget solution to all those Sinclair users who wanted a printer device for their Speccy. With an RRP of just £49.95 it was priced at a fraction of the cost of higher quality printers of the time which would have set you back upwards of £250, far more than you would have paid for the ZX Spectrum itself. Bargain! I hear you cry, but hold on just a minute. The ZX printer didn't print out on A4 as is the standard today, instead it printed out onto a special four inch wide black paper roll coated with a thin layer of aluminium. To print characters, two small styluses moved back and forth along a belt and by passing an electric charge through them they would in turn burn away the aluminium coating revealing the black paper underneath in the shape of the desired character. You were limited to 32 characters per line and had to be careful when handling as the aluminium coating was extremely sensitive making it very easy to leave fingerprints all over your printout.



ZX Interface 1 — Year of Release: 1983

By far one of the ZX Spectrums more interesting peripheral devices, the ZX Interface 1 was Initially designed for use as a local area network (LAN) interface. It also housed a socket for connecting the ZX Microdrive mass storage device and featured a standard RS232 socket for connecting up to modems and printers. The device initially sold on its own for an RRP of £49.95 or as part of an 'Expansion System' along with a ZX Microdrive unit for £79.95.



The interface plugged directly into the Spectrum's expansion socket and sat nice and snug under the main unit, which in turn tilted the keyboard to a more comfortable angle. It was then secured in place with two screws which prevented any 'wobble' issues and ensured a good secure connection between both interface and computer. All in all the interface allowed for the connection of up to a whopping sixty four ZX Spectrum's over a single network which was aptly named ZX Net. You were also able to appoint one of the networked Spectrum's as a dedicated server meaning you could output tasks such as printing and therefore only require one printer for many computers. Despite all its epic networking capabilities however the ZX Interface 1 was most commonly used for its Microdrive feature.

ZX Microdrive — Year of Release: 1983

In the early 1980s if you were looking for a mass storage device you would most likely be looking at purchasing an external floppy disk drive. But this type of hardware, especially for the home user, was still an expensive piece of kit and with external hard drives a rare and exuberant luxury only afforded by big corporate businesses a simpler and more affordable solution was needed.

The answer? The ZX Microdrive, a low cost, compact solution for Speccy owners that had a need for mass storage. Up to 85K of data could be stored on a single Microdrive cartridge which in turn could be read by the main unit at a rate of 15K per second. Further expansion of your mass storage was also possible as you could connect up to a total of eight Microdrive units together via a daisy chained link system.



Sounds good right? Well, sadly it wasn't without issue. Firstly, to even use the ZX Microdrive you needed the ZX Interface 1 to connect it to otherwise it was useless. Secondly the data cartridges themselves suffered from low speed and poor reliability due to the magnetic tape stretching during use which eventually led to data being unreadable over time. Thirdly and finally, the Microdrive was ignored by the software manufacturers.

Rotronics Wafadrive — Year of Release: 1984

The Wafadrive from Rotronics was an interface device intended to compete with Sinclair's ZX Interface 1 and Microdrive system. The unit itself was housed in large black box and unlike the ZX Interface 1 sat completely separate connected only via a short ribbon cable to the expansion port of the Spectrum. It still featured a RS232 socket but also had a parallel port for connecting additional peripherals.

Unlike the ZX Microdrive units however that required a separate cartridge, the Wafadrive had two internal built in mass storage tape drives with the added bonus of still being able to use additional external cartridges for more storage. The internal tape drive ran at two speeds, 'high' speed for searching through the tape catalogue and 'low' speed for the actual data transfer. The external cartridges or 'Wafas' as they are more commonly known, were larger than that of the Microdrive's and also came in four different storage sizes, 16KB, 32KB, 64KB and 128K. The purpose of the different sized cartridges was speed, the downside being that the larger the cartridge the longer it took to access due to the length of magnetic tape required and although being far faster than cassette the Wafadrive was still slower than a ZX Microdrive.

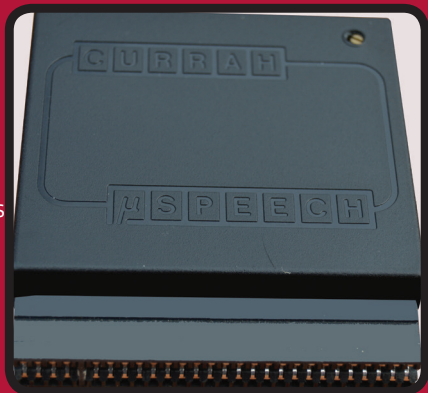


Currah µSpeech — Year of Release: 1984

The Currah µSpeech is yet another interesting little compact peripheral that attempts to recreate a 'human' like voice, which sounds far more like a Dr Who Dalek, through the use of phonetic descriptions of letters and words. The device came with an in depth programming manual and demonstration cassette to help you get to grips with things and create your own spoken texts. The unit also acted like a mini sound amplifier outputting sound directly through your television loudspeaker which may not sound like much but was a vast improvement on the internal Speccy speaker.

Several commercial game releases supported the device such as Lunar Jetman, 3D Monster Chase and Blastermind to name but a few. But don't try to use the unit with a non-compatible game as all you succeed in doing is crashing the entire system. Booty even loads up an alternative game!

Rather a remarkable accomplishment from British computer manufacturer Currah here when you consider that the earlier ZX Spectrum 16K/48K has never been known for its sound quality. A little bit gimmicky but come on, it's 1984 and your computer can talk like KITT from Knight Rider! Well, almost



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